Wisconsin Groundwater Policy: Critical Gaps in Protection

Legislative Working Group on Groundwater

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By Jodi Habush Sinykin
Former Groundwater Advisory Committee member
Of Counsel, Midwest Environmental Advocates

Where science meets policy: Groundwater Tenets & Concerns

- In Wisconsin, most surface waters are directly connected to the groundwater system. Surface waters and groundwater need to be managed as a *single resource.*

- Pumping by high-capacity wells can impact both groundwater and surface water.

- A majority of the state's surface water resources are *not* protected by current groundwater law.

- There is need for expanded Spring protection.

5 Key Issues Considered by the Groundwater Advisory Committee:

1. **The definition of "springs" protected under the law.**

2. **1200 foot distance criteria** for Groundwater Protection Areas (GPAs).

3. **Scope of Protected Waters** within GPAs.

4. **Significant Environmental Impact**.

5. **Water Conservation.**

Quick Review:

Under Act 310, a high-cap well proposed in one of following 3 categories is subject to NR 820's screening process to assess risk of environmental impact:

(i) If it's "near a Spring" that meets certain size and flow duration criteria;

(ii) If it's "within 1200 feet of" Trout Streams, Outstanding Resource Waters or Exceptional Resource Waters.

(iii) If it will have a High Water Loss.

"A Set of Human Eyes"— NR 820's environmental analysis

Chapter NR 820, Wis. Adm. Code establishes process and screening criteria to guide and identify the necessary level of environmental review for a high capacity well proposed within a GPA or near a statutorily designated spring.

NR 820's Screening Criteria

- Under NR 820's screening criteria, the DNR gathers information to estimate the potential impact of the proposed well on the designated water.

- The rule specifies that all approval within GPAs or near springs must include conditions to ensure that the well ***will not result in significant adverse environmental impact.***

Identified Gaps in Protection:

Gap # 1:

1200' GPA Criteria = Inadequate.

Existing 1200 ' distance criteria provides inadequate protection to valued surface waters beyond the prescribed statutory distance.

Other critical hydrogeologic and scientific parameters are not taken into account, as necessary to prevent adverse impacts to connected water resources.

Gap # 2: Limited Scope of Waters Designated for GPA Protection

Because only ERW, ORW and Trout Streams are designated for protection under current law, the majority of the state's lakes, rivers, streams, and wetlands receive no protection from high capacity well impacts.

Gap # 3: Springs Definition Too Restrictive

Act 310's definition of springs is too restrictive. Springs that flow at less than 1 cubic foot per second (cfs), or at that rate less than 80% of the time, are not considered a spring for purposes of protection under Act 310.

Gap # 4: Need for Adaptive Management

Under Act 310, there is no allowance for DNR to rescind or modify an existing high capacity well approval if significant problems develop.

Groundwater Protection Areas
“GPAs”

Groundwater Protection Area's 1200' Distance Criteria

Current Law: An NR 820 environmental review is required If the proposed well falls within a **Groundwater Protection Area (GPA), defined as "an area within 1,200 feet of any of the following:**

(i) Outstanding Resource Waters (ORW)

(ii) Exceptional Resource Waters (ERW)

(iii) Trout Streams—Class I, Class II, and Class III.

Groundwater Protection Area's
Scope of Protected Waters

Current law: ***Only*** ORW, ERW + Trout Streams are designated for protection as GPAs.

* As such, presently next to no high-cap-well protection is afforded nearly any of the state's lakes, a majority of the state's rivers and streams, or the state's wetlands.

Alternatives Considered by the GWAC:

1. Elimination of the 1200 ' Distance Criteria:

   In place of the 1200' distance currently provided under the law, **subject all proposed high-cap wells to a water science-based review** to assess the potential impact on nearby surface resources.

2. Expansion of the Scope of Protected Waters:

   Additional valued water resources should be included under the protected waters designation for GPAs, beyond just ERW, ORW and trout streams.

Post-GWAC Recommendations

** Retain GPAs but Expand
** Environmental Review

Expand the authority of the Department of Natural Resources to consider environmental impacts of high capacity wells proposed outside GPAs on surface waters—including rivers, streams, lakes and wetlands that are not ERW/ORW or trout streams—based on demonstrated hydraulic connectivity and the cumulative effects of existing wells.

Establish Screening + Review Process for high-cap wells outside of GPAs

= creation of a fourth category requiring environmental review and conditions for well approval different, yet parallel, to those currently in place for GPAs, springs and high-water loss.

A Collaborative Effort—science-based and transparent

- The DNR will be authorized to establish, by rules, **a screening and review process for high capacity wells outside of GPAs,** in collaboration with the Wisconsin Geological and Natural History Survey, US Geological Survey, and hydrologists and biologists from the University of Wisconsin system and other venues that:

(1) develops exemption criteria for those wells unlikely to have a significant adverse environmental impact to surface waters;

(2) establishes a tiered review process to screen out well applications that do not meet the exemption criteria but are still unlikely to have an adverse impact to surface waters.

(3) includes science-based criteria for unacceptable impacts to springs, rivers, streams, lakes and wetlands, and utilizes hydrologic models, accessible on-line, to determine if criteria are exceeded.

Springs

The Importance & Vulnerability of Springs

- Springs have high ecological value, supplying water for a variety of environmentally and economically valuable habitats including trout streams, fen-meadows and wetlands.

- Spring habitats frequently harbor endangered and threatened species.

- Springs provide the necessary habitat of cold oxygen-rich water essential for trout survival.

- Since springs rely on consistent groundwater flow, they are vulnerable to impacts from high capacity wells and excessive groundwater pumping, with related adverse impacts on spring-fed water habitats.

- As shown by the Wisconsin Wildlife Federation's *Inventory of Wisconsin Springs report (August 2007)*, statutory criteria based on a 1 cfs flow does not offer protection to large numbers (an estimated 70%) of springs in the state

Legislative Path Forward: Springs

Current Definition:

"Spring" means an area of concentrated groundwater discharge occurring at the surface of the land that results **in a flow of at least one cubic foot per second (CFS) at least 80% of the time."**

* the **only springs** protected under Act 310 are those that flow at a rate of **1 CFS or larger at least 80 % of the time.**

* it follows that springs that flow at less than 1 CFS or flow at that rate less than 80% of the time are not considered to be a spring for purposes of protection under Act 310 or NR 820.

Springs Studies + Database

* Following enactment of Act 310, the Groundwater Coordinating Council funded a number of spring studies in Calumet, Brown, St. Croix, Iowa and Waukesha Counties.

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* The Wisconsin Wildlife Federation received funding to develop a statewide inventory of all available recent and historic springs, creating a comprehensive springs database identifying a total of 10,851 springs, current and historic in the state.

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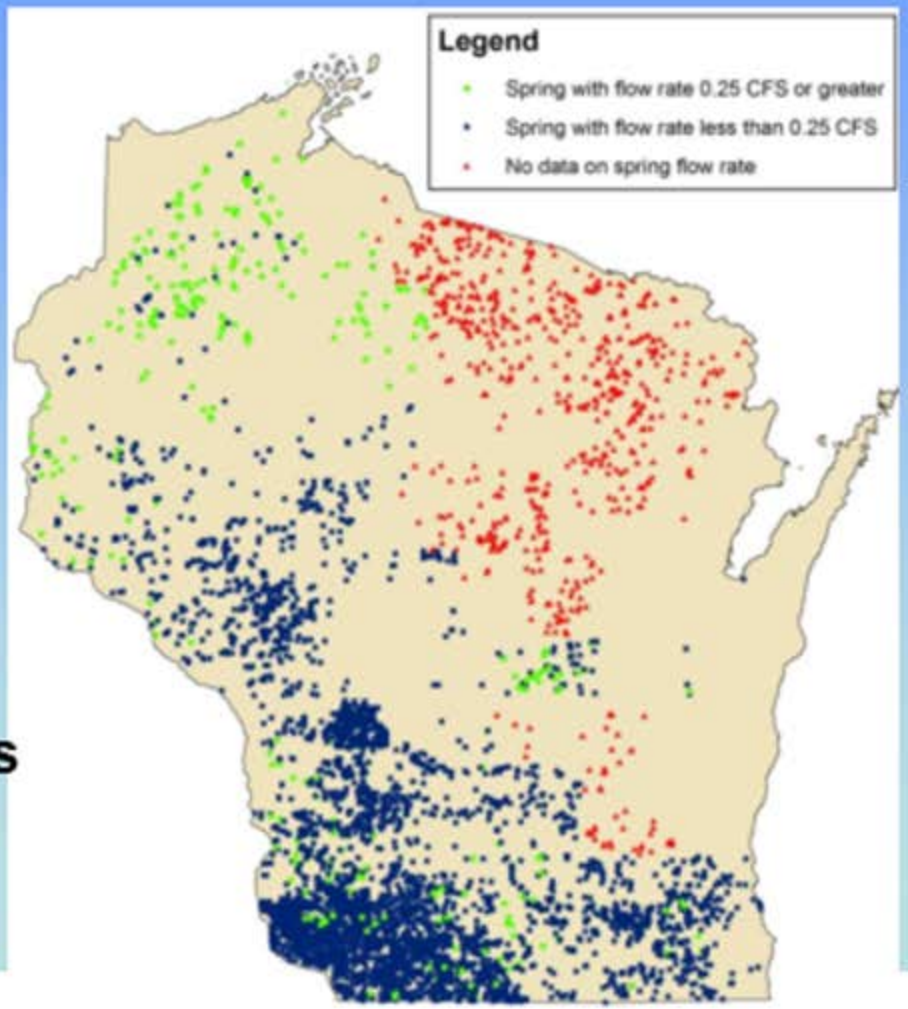
Of this total, only an estimated 235 springs in the state meet the 1 CFS flow criteria; the majority remain unprotected. (Macholl (2007).

Springs lacking protection under Act310

Springs falling within trout stream and O/ERW 1200 ft buffers have been removed.

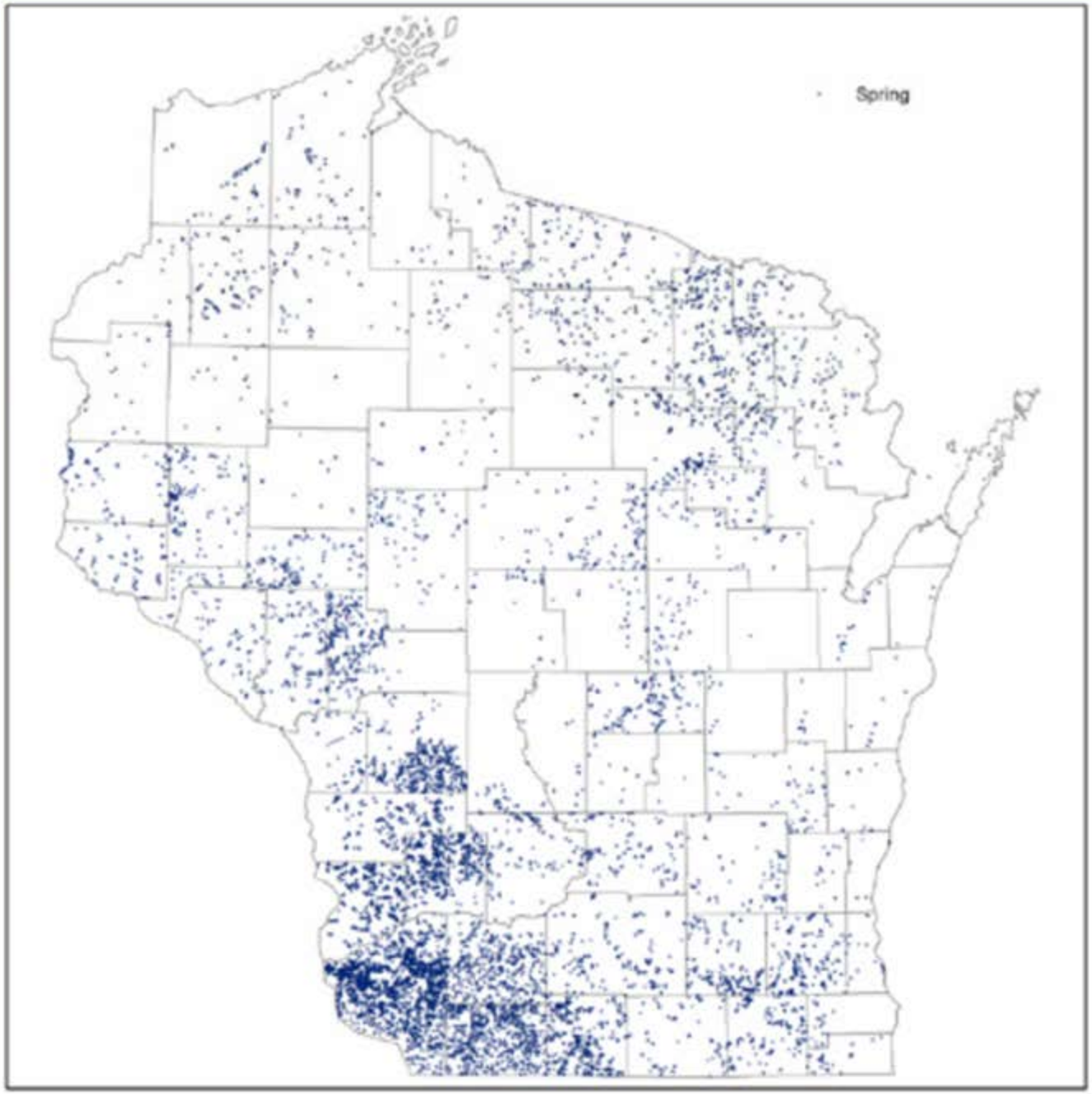


7487 springs, 70% of all springs, have no protections under Act310

Table 1

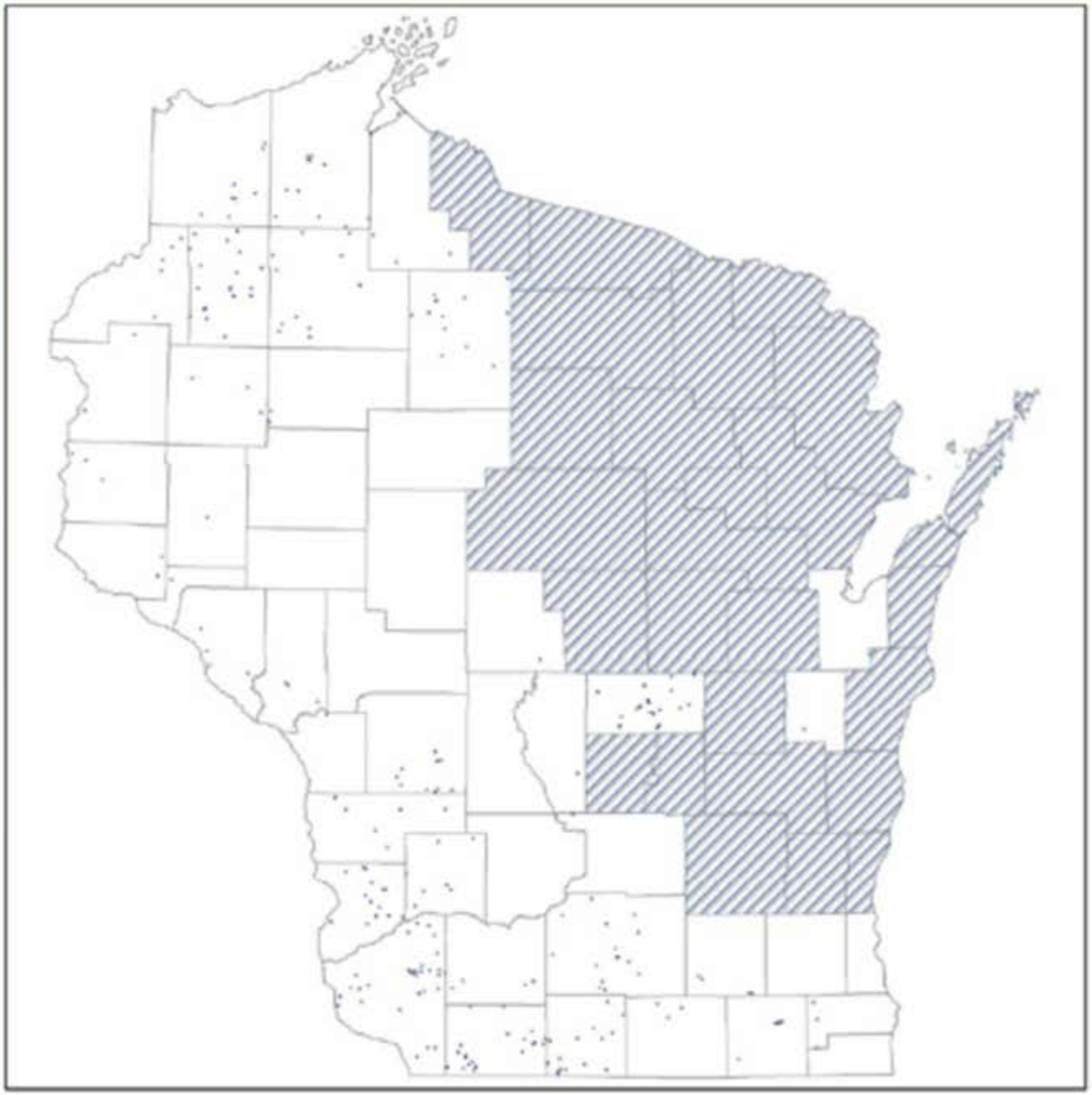
Flow Rate	Number of Springs	Cumulative Total	Number of Springs Not Associated With Trout Streams and O/ERW Waters	Cumulative Total
1 CFS and Greater	235	235	81	81
0.75 to 0.99 CFS	42	277	15	96
0.5 to 0.74 CFS	114	391	35	131
0.25 to 0.49 CFS	323	714	135	266
>0 to 0.24 CFS	7374	8088	5520	5786
Springs with no flow data	1648	9736	873	6659
Total Springs*	**10851**	X	7568	X

*Includes springs with flow rate of "none" and "dry" from historic surveys.



All Known Springs

Number of springs: 10851



Springs 0.25 CFS and Greater

Number of springs: 266

Approval of High-Cap Wells Near Springs

If a high-cap well is proposed within the vicinity of a spring of sufficient size to meet Act 310's definition, NR 820's screening process is triggered and DNR staff will evaluate available hydrogeologic information together with the well's construction details to make an initial determination whether the well could result in significant environmental impact.

IF significant impacts are predicted, a more extensive environmental review will be conducted.

Springs Status: Is Act 310 providing a regulatory value?

To date, only a few high-capacity well applications have involved springs, even fewer where the springs have met the 1 CFS flow threshold.

* 2 ongoing cases, applicants asked to provide additional information with the help of groundwater models to determine degree of connectivity between the well and springs in question; this information will be used to assess the significance of the potential impacts and whether additional review is necessary.

Recommendation:

Revise Springs Definition

[GWAC 2007 Report pp. 23-27]

[Springs Inventory Data p. 3]

Provide statutory protection to smaller springs vital to stream flow by defining protected springs as those ≥ 0.25 cfs in size, ***subject to verification***, and by eliminating the 80% flow duration component.

* if discharge rate disputed, determine if < .125 cfs or use ave. of 6 flows.

“Springs” Recommendations (cont.): Fund Database Development

Funding should be made available for long-term program enabling the DNR to maintain and update a springs database. The data should be made available to the public. To extent feasible, the updated springs inventory should note significant environmental/ecological aspects of each spring site visited.